wristband the nurse scans the barcode on the medicine labels of cytostatic drugs. If the dose being scanned corresponds to a pharmacist-approved medicines order and the patient is due for this dose, administration is automatically documented. However, if the dose does not correspond to a valid order, the application issues a warning. Every action performed with PDAs is recorded in the database.

Results During the first year since its introduction, this system has been used in 709 oncology-haematological and rheumatologic patients (24.8% haematology, 49.1% oncology, 22.6% rheumatology patients), 3995 medicine orders have been scanned (22.2% haematology, 60.2% oncology, 17.6% rheumatology) and 11435 doses identified (12.3% haematology, 80.8% oncology, 6.9% rheumatology).

99.7% of the doses identified with this system were administered while the remaining 0.3% were not administered to patients due to the occurrence of several adverse reactions.

Variables validated by the scan were: patient, drug administration sequence, start and end times. Possible errors detected: incorrect order of administration, drug already administered and drug selected that does not belong to the scanned patient. During the study period we detected 2 cases of selected drug that did not belongs to scanned patient. The system issued a warning that prevented the wrong drug being administered to the patient, probably the worst error with cytostatic drugs administration.

Conclusions The implementation of barcode medicines verification technology embedded in an eMAR in a day hospital acted as an additional safety net in medicines administration and patient safety. This system also improved treatment efficiency and achieved greater interdisciplinary collaboration.

No conflict of interest.

GRP-032 BENEFICIAL EFFECT OF HOSPITAL PHARMACIST PARTICIPATION IN INTENSIVE CARE ROUNDS: REDUCTION IN MEDICINES ERRORS AND HOSPITAL COSTS

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Background Medicines errors may result in patient harm. Especially in intensive care patients, adverse drug events caused by medicines errors are common. Interventions by hospital pharmacists have been shown to reduce adverse drug events and costs in intensive care units (ICUs).

Purpose To evaluate the effect of active participation of a hospital pharmacist in the ICU on medicines errors and hospital costs.

Materials and Methods A three-month pilot study was performed at the adult 32-bed ICU of the academic hospital Erasmus MC. Four hospital pharmacists were trained in specific aspects and protocols of intensive care. From July to September 2011, each patient's medicines profile was reviewed weekly using a standardised written form and a pharmacist was present on rounds. Potential medicines errors requiring intervention were documented and discussed during the round. In addition, the amount of time spent performing clinical activities at the ICU was recorded.

Results 267 medicines reviews were performed for a total of 169 patients in 51 rounds. 288 interventions for a total of 120 drugs were made. About 60% of the medicines reviews resulted in at least one intervention with an acceptance rate of 56%. Non-acceptance was mainly due to a lack of information at the time the medicines review was performed. 30% of interventions were relating to unnecessary drug use, 24% to drug omission and 17% to a wrong dose. Time spent on medicines reviews and visiting rounds was 7.3 hour per week. Based on these results we developed a business case for structural participation of a hospital pharmacist at the ICU.

Conclusions Participation of a hospital pharmacist in ICU rounds improves medicines safety and can be cost-effective. The pilot study and business case have resulted in the appointment of 0.5 FTE hospital pharmacist in the ICU.

No conflict of interest.

GRP-033 BENZODIAZEPINE DRUG ABUSE AMONG INTRAVENOUS DRUG USERS

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Background Benzodiazepine drug abuse is frequent in the general population. The reasons for this could be very diverse.

Purpose To review the role of benzodiazepine in intravenous drug users.

To find out which benzodiazepines are most used in this group and sought after on the black market.

Materials and Methods We interviewed five intravenous drug users of heroin or cocaine in Barcelona about their associated use of benzodiazepine. They were trained to interview other intravenous drug users with the same questionnaire that they had answered. All of them had looked for benzodiazepines on the illegal market at least once.

Results The analysis of the first 25 questionnaires answered showed that the most used benzodiazepine was clonazepam, used by 72% and the drugs used differed in half life and effects.

Conclusions Benzodiazepines selected by this sample of patients did not meet criteria for half-life or the main indications. They may simply be a reflection of which benzodiazepines are most prescribed nowadays by psychiatrists in the community.

Abstract GRP-033 Table 1

	N: 25	%
Clonazepam	18	72
Alprazolam	17	68
Clorazepate dipotassium	5	20
Lorazepam	4	16
Diazepam	4	16
Midazolam	2	8
Lormetazepam	2	8
Zolpidem	1	4

No conflict of interest.

GRP-034 BLOOD PRESSURE CONTROL AND ANTIHYPERTENSIVE PHARMACOTHERAPY PATTERNS IN A HYPERTENSIVE PORTUGUESE POPULATION

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Background Interventions to improve blood pressure (BP) control in hypertension have had limited success in clinical practise despite evidence of cardiovascular disease prevention in randomised controlled trials.

Purpose To evaluate BP control and patterns of antihypertensive pharmacotherapy in a population in the Central Region of Portugal, attending a hospital outpatient clinic for routine follow-up.

Materials and Methods Medical data of adult (age range, 18 to 85 years) hypertensive patients attending the hypertension clinic of Hospital Centre of Cova da Beira, Covilhã, Portugal, from March to August 2012, were prospectively obtained from medical records and analysed. Demographic variables, clinical data and BP values of hypertensive patients included in the study, as well as prescribing metrics, were examined on a descriptive basis and expressed as the mean±SD, frequency and percentages. Student's test and Mann-Whitney rank sum test were used to compare continuous variables and the χ^2 test and Fisher exact probability test were used to test for differences between variables in different categories.
Results In all, 47% of hypertensive patients (n = 44) had their BP controlled according to international guidelines. About 54% of patients with a target BP < 140/90 mmHg (n = 74) were controlled, whereas in patients with diabetes and/or chronic kidney disease (n = 20) the corresponding figure was only 20% (P = 0.007). The angiotensin II-receptor antagonists were the most prescribed drugs (57.5%), followed by calcium channel blockers (55.3%) and β-blockers (42.5%). About 82.4% hypertensive patients with comorbid diabetes were treated with an angiotensin-converting enzyme inhibitor or an angiotensin II-receptor antagonist.
Conclusions Many hypertensive patients prescribed antihypertensive treatment fail to achieve BP control in clinical practise; this control being worse among patients with diabetes or chronic kidney disease. As prescribing patterns seem to conform to international guidelines, further research is needed to identify the causes of poor BP control.

No conflict of interest.

GRP-035 BOCEPREVIR AND TELAPREVIR: SAFETY

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Background Protease inhibitors boceprevir and telaprevir were approved by the European Medicines Agency in July and September 2011 respectively for the treatment of hepatitis C genotype-1 in combination with peginterferon and ribavirin (triple therapy).
Purpose To describe the safety of boceprevir and telaprevir in clinical practise.
Materials and Methods All patients who received triple therapy prior to commercialization (compassionate use) with boceprevir or telaprevir to September 2012 were included. Data collected were: drugs administered for triple therapy, analytical parameters (haemoglobin, neutrophils and platelets) and subjective adverse effects. Patients were educated by the pharmacist about the medicines at the start of triple therapy and interviewed about adverse effects monthly with each refill of triple therapy.
Results Of the 36 patients with chronic hepatitis C included, 16 were treated with telaprevir and 20 with boceprevir. The most frequent adverse reactions were anaemia, neutropenia and thrombocytopenia. Anaemia was managed by reducing the dose of ribavirin (7 patients), erythropoiesis-stimulating agents (11 patients) and packed cells (7 patients). Neutropenia and thrombocytopenia were controlled with peginterferon dose reduction (2 patients) and granulocyte colony-stimulating factor (4 patients). Other adverse effects were fatigue or discomfort (16 patients), insomnia (5 patients), fever (5 patients), pruritus, dysgeusia, headache, nausea, diarrhoea and irritability. Eight patients had to discontinue treatment due to adverse reactions which were not controlled with dose adjustment or supportive drugs.
Conclusions All adverse events observed were reported in the EMA studies. Protease inhibitors have shown improve sustained virological response in clinical trials but these drugs are associated with a lot of adverse reactions. It is very important to have close collaboration between the physician and the pharmacist for medicines management, so that adverse reactions not described in the drug information will be reported to health agencies.

Abstract GRP-035 Table 1

Protease inhibitor	No. of patients	Anaemia	Neutropenia	Thrombocytopenia
		n (%)		
Boceprevir	20	17 (85)	14 (70)	15 (75)
Telaprevir	16	11 (69)	6 (38)	13 (81)

No conflict of interest.

GRP-036 CARDIOVASCULAR RISK IN HIV PATIENTS AND HCV CO-INFECTED PATIENTS TREATED WITH LOPINAVIR/RITONAVIR OR ABACAVIR

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Background An estimate of the risk of suffering a cardiovascular event guides the development of preventive strategies and treatment optimization. In HIV and co-infected HIV/HCV patients the state of chronic inflammation, altered endothelial function, a higher prevalence of smoking and antiretroviral treatment toxicity tend to increase the risk compared to the non-infected population.
Purpose To estimate the cardiovascular risk of HIV infected patients, HCV/HIV patients, and those treated with lopinavir/ritonavir or abacavir in a hospital. To describe the population and their main risk factors.
Materials and Methods This was a 6-month retrospective and observational study. Demographic and clinical data, such as lipid profile, immunological state or current treatments, were collected. Three different tools were used to estimate the 10-year cardiovascular risk: Framingham, SCORE and Regicor, in order to minimise the possible under-estimation for the infected Spanish population.
Results 56 patients matched the inclusion criteria. The average age was 48 (78.6% men). All patients had a good immunological state. The first modifiable risk factor was smoking (66.1%) dyslipidaemia the second (50%) and hypertension the third (37.5%). The co-infected population presented the main risk factors in higher percentages than the mono-infected group (81.3% smoked and 90% had dyslipidaemia). The number of patients identified as having a high cardiovascular risk with the estimation methods used was low. Framingham was the tool that classified more patients into this group (18.5% versus 12.73% SCORE and 1.85% Regicor).
Conclusions The results of this study, which accorded with previous publications, show the high prevalence of cardiovascular risk factors in this population, especially smoking and dyslipidaemia, showing the importance of identifying high-risk patients in order to prevent cardiovascular events. It also evidences the lack of a specific way of identifying these patients, which would help direct preventative efforts.

No conflict of interest.

GRP-037 CATHETER RELATED INFECTION TREATMENT PROTOCOL COMPLIANCE IN THE INTENSIVE CARE UNIT

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